UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,749	04/05/2001	Kevin Gary Tapperson	AUS920010054US1	8847

7590 02/10/2005	**EXAMINER**
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ART UNIT	PAPER NUMBER
2127	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/826,749	TAPPERSON, KEVIN GARY
	Examiner	Art Unit	
	Syed J Ali	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All   b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the amendment filed November 12, 2004. Claims 1-

21 are presented for examination.

2.   The text of those sections of Title 35, U.S. code not included in this office action can be

found in a prior office action.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

4.   **Claims 3, 7, 13, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being**

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

5.   The following terms lack antecedent basis:

        a.   In line 4 of claims 3 and 13, line 3 of claims 7 and 17, "the server task".

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for

patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   **Claims 1, 9-11, and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Arnold et al. (USPN 6,694,507) (hereinafter Arnold).**

8.   As per claim 1, Arnold teaches the invention as claimed, including a method for generating a full thread dump at a server virtual machine, comprising:

receiving a server dump request (col. 4 lines 60-62; col. 6 lines 31-41) from a client' virtual machine via a network (col. 8 lines 28-49);

invoking a task to issue a dump request (col. 10 lines 5-12);

generating a dump in response to the dump request (col. 9 lines 17-19; col. 10 lines 12-49); and

passing the dump to the client virtual machine via the network (col. 8 lines 28-49).

9.   As per claim 9, Arnold teaches the invention as claimed, including a method for generating a server virtual machine full thread dump at a remote virtual machine, comprising:

sending a server thread dump request (col. 4 lines 60-62; col. 6 lines 31-41) to the server virtual machine via a network (col. 8 lines 28-49);

receiving a thread dump from the server virtual machine via the network (col. 9 lines 17-19; col. 10 lines 5-49); and

presenting the thread dump (col. 8 lines 28-49).

10.   As per claim 10, Arnold teaches the invention as claimed, including the method of claim

9, further comprising debugging the server virtual machine at the remote virtual machine using

the thread dump (col. 6 lines 31-41).

11.   As per claim 11, Arnold teaches the invention as claimed, including an apparatus for

generating a thread dump at a server virtual machine, comprising:

receipt means for receiving a server dump request (col. 4 lines 60-62; col. 6 lines 31-41)

from a client virtual machine via a network (col. 8 lines 28-49);

invocation means for invoking a task to issue a dump request (col. 10 lines 5-12);

generation means for generating a dump in response to the dump request (col. 9 lines 17-

19; col. 10 lines 12-49); and

communication means for passing the dump to the client virtual machine via the network

(col. 8 lines 28-49).

12.   As per claim 19, Arnold teaches the invention as claimed, including an apparatus for

generating a server virtual machine thread dump at a remote virtual machine, comprising:

sending means for sending a server thread dump request (col. 4 lines 60-62; col. 6 lines

31-41) to the server virtual machine via a network (col. 8 lines 28-49);

receipt means for receiving a thread dump from the server virtual machine (col. 9 lines

17-19; col. 10 lines 5-49); and

presentation means for presenting the thread dump at the remote virtual machine (col. 8

lines 28-49).

13.   As per claim 20, Arnold teaches the invention as claimed, including a computer program product, in a computer readable medium, for generating a full thread dump at a server virtual machine, comprising:

instructions for receiving a server dump request (col. 4 lines 60-62; col. 6 lines 31-41) from a client virtual machine via a network (col. 8 lines 28-49);

instructions for invoking a task to issue a dump request (col. 10 lines 5-12);

instructions for generating a dump in response to the dump request (col. 9 lines 17-19; col. 10 lines 12-49); and

instructions for passing the dump to the client virtual machine via the network (col. 8 lines 28-49).

14.   As per claim 21, Arnold teaches the invention as claimed, including a computer program product, in a computer readable medium, for generating a server virtual machine full thread dump at a remote virtual machine, comprising:

instructions for sending a server thread dump request (col. 4 lines 60-62; col. 6 lines 31-41) to the server virtual machine via a network (col. 8 lines 28-49);

instructions for receiving a thread dump from the server virtual machine via the network (col. 9 lines 17-19; col. 10 lines 5-49).

instructions for presenting the thread dump (col. 8 lines 28-49).

Claim Rejections - 35 USC § 103

15. **Claims 2, 8, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold in view of Xia (USPN 6,542,900).**

16. As per claim 2, Xia teaches the invention as claimed, including the method of claim 1, wherein the step of receiving a server dump request comprises receiving the server dump request using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

17. It would have been obvious to one of ordinary skill in the art to combine Arnold and Xia since using a standardized callback mechanism, such as RMI simplifies implementation by allowing all code to be written in a single language, thereby allowing easier debugging to identify common errors such as memory leaks (Xia, col. 44 line 66 - col. 5 line 5).

18. As per claim 8, Xia teaches the invention as claimed, including the method of claim 1, wherein the step of passing the thread dump to the client virtual machine comprises sending the thread dump using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

19. As per claim 12, Xia teaches the invention as claimed, including the apparatus of claim 11, wherein the receipt means comprises means for receiving the server dump request using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

20.   As per claim 18, Xia teaches the invention as claimed, including the apparatus of claim

11, wherein the communication means comprises means for sending the full thread dump using

remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

21.   **Claims 3-6 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable**

over Arnold in view of "JNI FAQ for JDK 1.1" (hereinafter JNI).

22.   As per claim 3, JNI teaches the invention as claimed, including the method of claim 1,

wherein the step of passing the full thread dump to the client virtual machine comprises:

        capturing the thread dump using a hook (Question 4, "Why does JNI_CreateJava VM

fail..."); and

        passing the captured thread dump to the server task (Question 4, "Why does

JNI_CreateJava VM fail...").

23.   It would have been obvious to one of ordinary skill in the art to combine Arnold and JNI

since the "vfprintf" hook allows the virtual machine to monitor itself and capture VM error

messages. The output is redirected to a standard output file, which in the case of an error

message, is "stderr". This allows a user to view the application during execution and debug

accordingly.

24.   As per claim 4, JNI teaches the invention as claimed, including the method of claim 3,

wherein the hook is vfprintf (Question 4, "Why does JNI_CreateJava VM fail...").

25.   As per claim 5, JNI teaches the invention as claimed, including the method of claim 3, wherein the step of capturing the thread dump using a hook comprises reading the captured thread dump from a standard file handle for error messages (Question 4, "Why does JNI_CreateJava VM fail...").

26.   As per claim 6, JNI teaches the invention as claimed, including the method of claim 3, wherein the standard file handle for error messages is stderr (Question 4, "Why does JNI_CreateJava VM fail...").

27.   As per claim 13, JNI teaches the invention as claimed, including the apparatus of claim 11, wherein the communication means comprises:

        capture means for capturing the thread dump using a hook (Question 4, "Why does JNI_CreateJava VM fail..."); and

        passing means for passing the captured thread dump to the server task (Question 4, "Why does JNI_CreateJava VM fail...").

28.   As per claim 14, JNI teaches the invention as claimed, including the apparatus of claim 13, wherein the hook is vfprintf (Question 4, "Why does JNI_CreateJava VM fail...").

29.   As per claim 15, JNI teaches the invention as claimed, including the apparatus of claim 13, wherein the capture means comprises means for reading the captured thread dump from a standard file handle for error messages (Question 4, "Why does JNI_CreateJava VM fail...").

30.   As per claim 16, JNI teaches the invention as claimed, including the apparatus of claim

13, wherein the standard file handle for error messages is stderr (Question 4, "Why does

JNI_CreateJava VM fail...").

31.   **Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Arnold in view of JNI in view of Xia.

32.   As per claim 7, Xia teaches the invention as claimed, including the method of claim 3,

wherein the step of passing the thread dump to the client virtual machine further comprises:

        sending the thread dump from the server task to the client virtual machine using remote

method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

33.   It would have been obvious to one of ordinary skill in the art to combine Arnold, JNI, and

Xia since using a standardized callback mechanism, such as RMI simplifies implementation by

allowing all code to be written in a single language, thereby allowing easier debugging to

identify common errors such as memory leaks (Xia, col. 44 line 66 - col. 5 line 5).

34.   As per claim 17, Xia teaches the invention as claimed, including the apparatus of claim

13, wherein the passing means further comprises:

        means for sending the thread dump from the server task to the client virtual machine

using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

Response to Arguments

35.   **Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.**

Conclusion

36.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Edwards (USPN 6,539,501) teaches tracing the execution a Java program and redirecting the trace to a log file, thereby monitoring the execution of a program. Bahrs et al. (USPN 6,289,771) teaches remote logging, tracing, debugging, and monitoring of Java programs using "hooks" to return the data to a client machine. Putrycz ("Using Trace Analysis for Improving Performance in COTS Systems") teaches debugging remotely executing Java programs, generating profile data (heap and object dumps) and returning the dumps to a client.

Johnson et al. (USPN 6,637,024) teaches enabling remote debugging of target virtual machines that do not otherwise have debugging capabilities. Evans et al. (USPN 6,826,746) teaches debugging of remote virtual machines, providing a client graphical user interface to manage the debugging, and using event handlers to facilitate communication between the client and the server.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The

examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Syed Ali
February 3, 2005

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